Actuarial Report

on the

Pension Plan

for Employees of

Participating Municipalities in Manitoba

as at

January 1st, 1983

TURNBULL and TURNBULL

Chairman and Members of the
Municipal Employees Benefits Board,
Winnipeg, Manitoba.

An actuarial valuation of the Pension Plan for Employees of Participating Municipalities in Manitoba has been made as at January 1st, 1983.

This Report provides:

(a) a record of the information provided,

(b) a description of the assumptions adopted,

(c) a summary of the procedures used,

(d) statements showing the financial results obtained in this valuation, and

(e) an analysis of these results.

1. Source of Information:

The valuation is based on the following information provided by the staff of the Board:

(a) Diskettes which provided information for each employee as at December 31st, 1982. The details of the information provided are: employer code, employee name and social insurance number, sex, date of birth, date of entry into the Plan, salary received in 1982, the proportion of 1982 worked while an employee to obtain the salary reported, required employee contributions and total interest on these contributions accumulated to the valuation date.

(b) Diskettes which provided information for each pensioner as at December 31st, 1982. The details of the information provided are: employer code, pensioner name and social insurance number, sex, date of birth, date of retirement, type of pension and amount of monthly or annual pension. For each pensioner, the portion of the pension charged to the Plan, now and in the future, was also provided. Similar information was provided for each beneficiary or potential beneficiary.

(c) Information for each former employee entitled to receive a deferred pension as at December 31st, 1982. The details of the information are: employee name and social insurance number, sex, date of birth, date of termination, pension start date, monthly pension amount, and former employer.

(d) An account history printout for each employee who transferred under a Reciprocal Agreement to another public sector employer, either within Manitoba or outside Manitoba.

(e) A statement of the long term disability benefits paid for the period from January 1st, 1980 to December 31st, 1982.

(f) A list providing the social insurance numbers of those employees who are participating in the Disability Part of the Pension Plan only.

(g) A list of employees as at December 31st, 1982, who were making payments to convert prior service into contributory service. Details of the information provided included: name, employer, total eligible prior service, lump-sum cost of this service, prior service credit purchased by the rollover of an amount from a prior carrier, the prior service balance and corresponding cost, schedule of instalment payments, and a summary of payments made to December 31st, 1982.

(h) A record of general salary increases granted to employees since December 31st, 1979.

(i) A list of Municipalities participating in the Plan and their section codes.

(j) A list of Municipalities participating in the Disability Part of the Plan. This list indicated, for each Municipality, the proportion of required contributions to the Disability Part of the Plan being paid by the employees and the proportion being paid by the Municipality.

(k) The annual reports and financial statements for 1980, 1981, and 1982.

We also had available copies of:

(a) the Actuarial Report on the financial position of the Plan as at January 1st, 1980 (1980 Report),

(b) the Pension Plan as approved by the Lieutenant Governor in Council on December 22nd, 1976 (O/C 1364/76),

(c) the Outline of the Pension Plan for Employees of "Participating Municipalities" in Manitoba, and

(d) an Outline of the Disability Part of the Pension Plan.

In this Report all references to Plan mean the Pension Plan for Employees of Participating Municipalities in Manitoba.

The data provided as at January 1st, 1983 was compared to the data provided as at January 1st, 1980 for all employees who were participating in the Plan on January 1st, 1980. The data provided was also checked for missing information and illogical information.

As a result of these procedures, some of the information received was corrected, missing information was located and some persons were re-classified.

The salaries received in 1982 were increased to obtain annual salary rates as at January 1st, 1983. This increase was made by assuming that increases in salaries during 1982 occurred in accordance with the assumptions made for future increases in salaries.

Some employees were members of the Plan for only part of 1982. For these employees the salary received was increased to reflect the salary that would have been received had the employee been a member of the Plan throughout 1982.

2. Membership of the Plan

The information provided indicated that the membership of the Plan was as follows:

	January 1st, 1983	January 1st, 1980
Employees participating in:		
Pension Part of Plan only		
- Males	493	1,057
- Females	164	269
Disability Part of Plan only		
- Males	54	-
Both Parts of Plan		
- Males	821	-
- Females	207	-
Pensioners		
- Males	94	36
- Females	18	7
- Beneficiaries	9	4
Former employees entitled to deferred pensions		
- Males	16	5
- Females	5	1
Former employees transferred to another public sector employer within Manitoba		
- Males	12	9
- Females	2	-
Former employees transferred to another public sector employer outside Manitoba		
- Males	1	3
	1,896	1,391

3. Operation of the Plan

A number of amendments have been made to the Plan since January 1st, 1980. The 2 amendments which had a significant financial effect are described below:

(a) Effective June 1st, 1981, the Plan was amended to implement the Disability Part of the Pension Plan. The purpose of this Part of the Plan is to provide a pension which will help to offset a loss of earnings which occurs in the event of sickness or accident.

For an employee participating in both Parts of the Plan, the amount of pension is calculated by using contributory service prior to the date of disability plus service which could have been completed from that date to age 65. This service is multiplied by 1.4% of the employee's average yearly Canada Pension Plan earnings during the 7 years in which his/her earnings were the highest, and by 2.0% of the portion of his/her average yearly earnings in excess of Canada Pension Plan earnings during the same 7 years.

For an employee participating in the Disability Part of the Plan only, any pension payable in the event of disability is based only on the service which could have been completed from the date of disablement to age 65. For an employee participating in the Pension Part of the Plan, any pension payable in the event of disability is based only on contributory service prior to the date of disablement.

The minimum total disability pension is 60% of the employee's rate of earnings in the last 13 weeks in which the employee had earnings less any other income from benefit plans to which his employer contributes such as Canada Pension, Workers' Compensation, etc. The maximum benefit is 85% of these same earnings.

The period of payment of a disability pension is related to the years of service completed prior to the date of disability and is as follows:

Years of Service	Period of Payment
<1	Maximum of 1 year
1 - 4	Maximum of 5 years
≥5	To age 65

The payment of a disability pension ceases upon recovery or upon attainment of age 65, if earlier. At age 65 the disability pension is replaced by a retirement pension.

Any subsequent retirement pension is based on contributory service and service while in receipt of a disability pension.

The pensions paid by the Disability Part of the Plan are financed by contributions. These contributions are equal to 1% of regular yearly earnings. These contributions may be shared by the municipality and the employee, paid entirely by the municipality or paid entirely by the employee.

(b) Pension adjustments were granted effective July 1st, 1981, 1982, and 1983 to offset increases in the cost-of-living after retirement. Full increases are granted to retired employees and beneficiaries whose pension commenced at least 18 months prior to the effective date of the increase in pension. Partial increases are granted if the pension commenced within the 18 months prior to the effective date of the increase in pension.

The full increases are equivalent to 50% of the increase in the cost of living for the 12 months ending 6 months prior to the effective date of the increase. One-half of the increase is made equal to xc times the number of years of contributory service. The other half is made equal to a percentage increase in the pension under the normal form plus any previous increases. The formulas for the increases have been as follows:

Effective July 1st of	Cents per Year of Contributory Service	Percentage Increase in Pension
1981	48c	2.8%
1982	51	3.0
1983	39	2.3

These increases in pension caused an increase in liabilities as at January 1st, 1980 equal to $263,300.

4. Experience of the Plan

The valuation is based on a set of assumptions as to those factors which will affect the Plan financially in future years. The factors which are of financial significance to the Plan are:

(a) the rate of return earned on the invested assets of the Fund,

(b) the rate at which salaries increase,

(c) the incidence of death after pension commences,

(d) the incidence of death prior to the date the pension commences,

(e) the incidence of termination of service, and the proportion of terminating employees who elect a deferred pension,

(f) the incidence of disability,

(g) the incidence of retirement prior to age 70 for reasons other than total disability,

(h) the rate at which interest is expected to be credited on required contributions, and

(i) the expenses of administering the Plan.

Assumptions are developed in respect of each of these factors in order to determine:

(i) the amounts of the contributions expected to be received and the benefits expected to be paid in each future year on the basis of the Plan as it existed at the valuation date, and

(ii) the present value of these expected contributions and benefits for the purposes of establishing the present financial position of the Plan.

Each assumption has been developed from the assumptions used in our 1980 Report. Any differences between the actual experience and the expectations based on the existing assumptions have been analyzed. Where appropriate, the assumptions used previously have been modified to reflect the results of this study of the experience.

Experience is available for the 6 year period, January 1st, 1977 to December 31st, 1982.

An adjustment was made if the difference was greater than the difference which could occur due to random fluctuations. Each adjustment reduced by 25% the difference between the number of events which actually occurrred in each quinquennial age group and the number of events expected to occur in that age group.

(a) Rate of Return on the Assets of the Fund

Rates of return have been calculated for the total assets of the Fund. Rates of return have also been calculated for the fixed income and equity portions of the Fund.

The fixed income portion of the Fund includes bonds, mortgages, funds being managed by insurance companies and trust companies, short term notes and accrued interest, less the amount of the fixed income investment reserve.

The equity portion of the Fund includes common shares and units of a pooled real estate fund.

The total assets of the Fund consist of the fixed income portion, the equity portion, cash, plus any amounts receivable less any amounts payable as at December 31st of each year.

The rates of return earned on the assets of the Fund each year during the last 6 years are shown in the following table:

Year Ending December 31st	Fixed Income Portion	Equity Portion	Total Fund
1977	8.89%	N/A	7.23%
1978	9.11	N/A	8.20
1979	10.68	N/A	10.34
Average (1977 - 1979)	9.56%	N/A	8.59%
1980	9.74%	11.51%	9.65%
1981	10.90	14.03	10.87
1982	11.78	12.13	11.59
Average (1980 - 1982)	10.81%	12.56%	10.70%

The rates of return on the fixed income portion of the Fund are based on the amortized cost of the fixed income investments less the amount of the fixed income investment reserve. Income on the fixed income investments each year is the interest earned less the amount credited to the fixed income investment reserve.

The rates of return on the equity portion of the Fund are based on the book value of the equity investments, as shown in the accounts of the Fund. Income on the equity investments each year is either dividend income or share of earnings depending on the investment. The book value of the investment is equal to either the cost or the adjusted cost.

In our 1980 Report, it was assumed that the rate of return would be 7.75% per year. The rates of return earned during 1980, 1981, and 1982 compare favourably with the assumed rate of return.

An actuarial valuation relates to events which are expected to happen in the future. As a result, the rates of return earned in past years are important only to the extent that they constitute a good indication of the rates of return which can be expected to be earned in the future. The rate of return assumed in an actuarial valuation should represent a reasonable balance between current investment rates and the level of investment earnings expected to be realized in the future.

A good indication of the rates of return likely to be available in future years can be obtained from a study of the rates which have been available over a period in the past. It is important that the period studied be long enough to include the effect of a variety of economic conditions, and therefore we have used the 20-year period from January 1st, 1963 to December 31st, 1982. During this period, the average rate of return on each category of fixed income investment included in the Fund was as shown in the following table:

Investment Category	20-Year Average Rate of Return	Basis
Federal Bonds	8.58%	Long-term Federal Bonds
Provincial Bonds	9.19	M.Y.W. Provincial Bonds
Corporate Bonds	9.42	M.Y.W. Industrial and Utility Bonds
Municipal Bonds	9.47	M.Y.W. Municipal Bonds
General Bonds	9.37	M.Y.W. 40 Bond Yield Average
N.H.A. Mortgages	9.80	N.H.A. Mortgage Interest Rates less 3/8 of 1% for Servicing
Conventional Mortgages	10.23	Conventional Mortgage Interest Rates less 3/8 of 1% for Servicing
Calendar Year Funds	9.05	Interest Rates allowed on Calendar Year Funds

Similar results have not been provided for equity investments since, unlike fixed income investments, an equity investment is attractive only if there is an increase in the value of the investment during the term of the investment. Over long periods in the past, these increases in value have been sufficient to cause the rate of return obtained on equities to exceed the rate of return on fixed income investments. In the last 20 years there have been significant fluctuations in the value of equity investments. As a result, the dates on which such investments are purchased and sold have an important influence on the results that are obtained.

It has been assumed that, in future, it will be possible to choose these dates with sufficient skill so that the rate of return obtained on equity investments will be at least as high as the rate of return which could have been obtained on fixed income investments. As it is possible to allocate all of the Fund to fixed income investments, it is reasonable to assume that existing investments in equities will be retained, and new investments in equities will be made only if such investments are expected to produce a higher rate of return than fixed income investments. Otherwise, investments in equities would not be justified.

The amounts invested in short-term investments have been excluded from this tabulation. Such investments are used to produce income for the Fund until it is appropriate to make more permanent investments. Use of this procedure helps to increase the rate of return earned by the Fund.

Over the 6-year period prior to the valuation date, the new fixed income investments of the Fund were distributed by category in the following proportions:

Investment Category	Proportion
Federal Bonds	10.74%
Provincial Bonds	.75
Corporate Bonds	10.47
Municipal Bonds	4.04
General Bonds	1.55
N.H.A. Mortgages	12.51
Conventional Mortgages	33.42
Calendar Year Funds	26.52
	100.00%

This information can be used to determine the rate of return which is expected to be obtained in future years if it is assumed that:

(i) the distribution of new fixed income investments by category over the 6-year period is a good representation of the investment policy which will be followed in the future, and

(ii) any equity investments will produce at least as high a rate of return as fixed income investments.

A rate of return of 9.55% per year is produced by the use of this distribution of investments and the 20-year average rates of return for these investments. This rate is reduced to 9.33% per year if allowance is made for investment management charges of.22 of 1% per year.

A similar procedure was used to determine the rate of return assumed in the 1980 Report. During the 20 years prior to December 31st, 1979, new investments produced a rate of return which was equal to 7.99% per year, on average, after allowance was made for investment management charges. This rate led to an assumed rate of return of 7.75% per year.

It is desirable to make allowance for the possibility that the rates of return which are available in the future will be less than the rates of return which were available during the 20-year period.

On the basis of the foregoing considerations, it is reasonable to expect that the Fund will earn a rate of return of at least 9.00% per year, on average in the future.

The assumed rate of return will be the same as the actual rate if there is no change in the distribution of investments by category, and no gains or losses are realized on the sale of investments. The same or better results would be achieved if any losses are more than offset by an increase in the investment income.

The rate assumed is also affected by the following considerations. The anticipated rate should take into account the effect which a decrease in the rate of inflation will have on rates of return obtained in future. Due to the important financial consequences of any need to decrease the assumed rate, the rate chosen should continue to be satisfactory in periods when average rates of inflation are being experienced.

A good indication of the portion of the assumed rate of return of 9.00% per year which can be considered as the inflationary component can be obtained by determining the average annual rate of increase in the Consumer Price Index. During the 20 years prior to December 31st, 1982, the Consumer Price Index increased by an average of 6.53% per year.

If the inflationary component in the assumed rate of return is 6.50%, the real rate of return is expected to be 2.50% per year. In our 1980 Report, the inflationary component was 5.00% per year and the real rate of return was expected to be 2.75% per year.

There are 2 reasons for identifying the 2 parts of the rate of return. These are:

(i) The assumed rate of return is based on an assumption as to future economic conditions. So also is the assumption made as to the rate at which salaries will increase in future years. Consequently, in order to ensure consistency, the same allowance for inflation, i.e. 6.50% per year, is used in developing both actuarial assumptions.

(ii) By identifying the real rate of return, a good indication can be obtained of the significance of the rate assumed in other than average economic conditions. The assumption of a real rate of return of 2.50% per year implies that investments obtained for the Fund are expected to yield a rate of return of 2.50% per year in excess of the average rate of inflation during the period these investments are held.

In our 1980 Report, the assumed rate of return was 7.75% per year. The increase in the assumed rate is attributable to an increase in the inflationary component of the rate of return. The increase would have been larger had there not been a reduction in the expected real rate of return.

(b) Rates of Salary Increase

Salary increases occur as a result of:

(i) general increases. These increases in salary are granted to all employees and reflect changes in economic conditions, and

(ii) service, merit and promotional increases. These increases in salary are granted on an individual basis to recognize an employee's service and increased value to his/her employer.

Each class of increase is considered separately in developing the rates at which salaries can be expected to increase in the future.

(i) General Increases in Salary Levels

The 2 components of general increases in salaries are:

(A) the inflationary component. Employees seek increases in salary in order to offset any decreases in purchasing power which are caused by inflation, and

(B) the productivity component or increase in the standard of living component. The productivity component consists of that portion of general increases in salaries which are not offset by inflation. These increases are due to factors such as increases in the real value of goods and services produced per employed person. An increase in productivity is made possible by the greater use of automated or other equipment. Other increases can occur as a result of increases in the qualifications needed to fulfill a position.

The inflationary component of future increases in salaries should be the same as the inflationary component included in the rate of return assumed to be earned on the assets of the Fund in future years. As explained in the previous subsection of this Report, the period used requires the allowance made for inflation in the future to be at the rate of 6.50% per year.

The productivity component is based on a study of increases in the average salaries of employed persons in Canada during the 20-year period prior to December 31st, 1982. The productivity component is obtained by deducting the inflationary component from these increases in salaries. During this period, the productivity component was equal to 1.96% per year.

The productivity component has decreased steadily in recent years. In the last 6 years, the standard of living has decreased by an average of .30% per year.

Past increases in the standard of living were greater than increases in productivity during the same period. It is likely that at least part of this difference will need to be absorbed before normal increases occur. This will cause increases to be lower in the future than they have been over long periods in the past.

On the basis of these considerations, an allowance of 1.00% per year was made for the productivity component of general salary increases. This is lower than the allowance made in previous years. In previous Reports, the allowance made for increases in salary due to productivity was equal to 1.25% per year.

The expected general increases in salary are obtained by adding together the increases expected to occur in each component. On that basis, general increases in salary are expected to occur at a rate equal to 7.50% per year in future, on average, this rate consisting of an average expected productivity increase of 1.00% per year plus an allowance for future inflation at a rate of 6.50% per year.

(ii) Service, Merit and Promotional Increases

The following table shows the increases in salary due to service, merit and promotion expected to occur each year in the future. These rates vary by age and sex. Experience indicates that a statistically significant difference in earnings' patterns still exists between male and female employees:

Ages	Males	Females
20 - 25	5.5%	3.4%
25 - 30	3.2	2.5
30 - 35	2.5	1.6
35 - 40	1.7	1.4
40 - 45	1.4	1.2
45 - 50	1.2	1.0
50 - 55	0.8	0.6
55 - 60	0.5	0.5
60 - 65	0.4	0.4
65 - 70	0.4	0.4

The following procedure was used to determine these rates:

The average salary received during the year ended December 31st, 1982 by employees in the same quinquennial age and length of service subdivision was compared with the average salaries of other groups of employees who, on average, are 5 years older with 5 more years of service, are 10 years older with 10 more years of service, are 15 years older with 15 more years of service, and so on. For this purpose, we excluded the salaries of those employees who are receiving more than twice as much or less than half as much salary as the average salary in that age and service group.

A comparison of the actual increases in salary to those expected was made. This comparison indicated that an adjustment should be made to the previously adopted rates of increases in salaries for males and females. The adjustment was made by reducing by 25% the difference between the actual percentage change in salaries and the expected percentage change for these 2 categories of employees.

(c) Incidence of Death After Pension Commences

The study of mortality rates after pension commences differentiated between:

(i) employees who retired in at least average health,

(ii) employees who received a pension due to total disability, and

(iii) survivors of employees who died in service or while in receipt of pension.

This separation makes it possible to recognize any differences in the rates of mortality which are due to the way in which the pension commenced.

The results of this study are shown in the following table:

		1980 - 1982		1977 - 1982	
		Actual	Expected	Actual	Expected
Males	- Non-disabled	6	4	8	5
	- Disabled	3	1	3	1
Females	- Non-disabled	-	<1	1	<1
	- Survivors	-	<1	-	<1
		9	5	12	6

The actual number of deaths was greater than the number expected amongst non-disabled males. These results are likely due to a random fluctuation. The number of deaths reported is more than the number that would have been reported had the experience amongst pensioners been the same as the mortality experience amongst pensioners in other plans established for employees of municipalities.

This fluctuation is likely due to the relatively small number of pensioners.

In view of these considerations, no major change was made to the rates of mortality amongst non-disabled males. A minor reduction was made to the rates of mortality assumed at ages 55 and older so that these rates of mortality would be the same as the rates of mortality assumed at the same ages amongst male employees.

The actual number of deaths amongst non-disabled females is the same as the number expected.

The accumulated experience amongst non-disabled females is smaller than that for non-disabled males. The only change made to the rates of mortality was made at ages 55 and older. This reduction was made so that these rates of mortality would be the same as the rates of mortality assumed at the same ages amongst female employees.

The actual number of deaths was greater than the number expected amongst disabled males in both the 3-year period and 6-year period prior to the valuation date. This is a desirable condition. The accumulated experience is not large at this time. In 1981, there was a change in the definition of disablement. This change made it easier to qualify for the pension provided as a result of disablement.

In view of these considerations, no change was made to the rates of mortality expected to occur amongst male pensioners who were disabled at the date the pension commenced.

There are no disabled females receiving a disability pension. As a result, the rates of mortality assumed are those which reflect the natural difference in rates of mortality between disabled males and disabled females.

There is no significant information available concerning the mortality experience amongst survivors who are receiving a pension. This is due to the small number of survivors.

Normally, the mortality experience of survivors is similar to the mortality experience amongst pensioners of the same sex who were in at least average health at retirement. The present rates of mortality for survivors and non-disabled pensioners reflect this similarity. As a result, the rates of mortality for survivors have been made equal to the rates of mortality for non-disabled pensioners.

(d) Incidence of Death Prior to the Date the Pension Commences

A study was made of the incidence of death in service amongst employees contributing to the Plan.

The results of this study are shown in the following table:

	1980 - 1982		1977 - 1982	
	Actual	Expected	Actual	Expected
Males	19	16	30	28
Females	1	2	2	3
	20	18	32	31

The actual number of deaths in service has been close to the number expected in both the 3-year period and 6-year period prior to the valuation date. As a result, the rates of mortality anticipated in the 1980 Report continue to be suitable for use in this Report.

A number of employees are continuing in service after age 65. Rates of mortality have been allocated at ages 66 to 69 to make allowance for the possibility of death in service at these ages.

(e) Incidence of Termination of Service

(i) Leading to a Lump-sum Payment or a Deferred Pension.

Each employee who terminates service prior to retirement is entitled to receive either a lump-sum payment or a deferred pension, or both.

The results of the study of the incidence of termination from service are shown in the following table:

	1980 - 1982		1977 - 1982	
	Actual	Expected	Actual	Expected
Males	297	128	594	224
Females	141	105	240	173
	438	233	834	397

The foregoing tabulations include all employees who terminated service prior to retirement. More meaningful results can be obtained by excluding those employees whose service is not financially significant. A termination is considered to be financially significant if the terminating employee has completed at least 5 years of service or more than one-half of the average period of service which has been completed by employees of the same age.

The results of the study of the incidence of significant terminations of service are shown in the following table:

	1980 - 1982		1977 - 1982	
	Actual	Expected	Actual	Expected
Males	153	94	283	155
Females	93	79	154	126
	246	173	437	281

The actual number of terminations amongst males and females was greater than the number expected in both the 3-year period and 6-year period prior to the valuation date. The present margin in the rates of termination makes allowance for a possible reduction in the rates of withdrawal if rates of unemployment are higher in the future than they have been over longer periods in the past. Rates of termination amongst males are particularly sensitive to the rates of unemployment. As a result, no changes have been made to the rates of termination anticipated amongst males and females. These rates are the same as the rates of termination anticipated in the 1980 Report.

(ii) Proportion Electing a Deferred Pension.

A study has been made of the decisions of those employees who were less than age 45 at the date of termination but were eligible to elect a deferred pension. The results of this study are shown in the following table:

	1980 - 1982		1977 - 1982	
	Actual	Expected	Actual	Expected
Males	11	3	13	3
Females	3	1	4	1
	14	4	17	4

The number of terminating employees who elected a deferred pension was greater than the number expected to do so in both the 3-year period and the 6-year period prior to the valuation date.

Some of these former employees are likely to take a cash payment before their pension commences. A change in decision is most likely to occur amongst the 4 former employees who were less than age 30 at the date of termination.

The results of the study make it desirable to increase the proportion of terminations expected to elect a deferred pension. The adjustment made caused a 25% reduction in the difference between the actual number of terminations electing a deferred pension and the number expected during the 6-year period prior to the valuation date.

This adjustment increased to 7, the number of terminating employees that would have been expected to elect a deferred pension during the last 6-year period.

If an employee has reached age 45 and completed at least 10 years of service at the date of termination, he/she must take a deferred pension in respect of service after July 1st, 1976. It has been assumed that each of these employees who terminate service prior to retirement will take a deferred pension in respect to all of his/her service.

(f) Incidence of Becoming Disabled

The results of the study made of the incidence of employees becoming disabled are shown in the following table:

	1980 - 1982		1977 - 1982	
	Actual	Expected	Actual	Expected
Males	7	12	10	22
Females	1	4	1	7
	8	16	11	29

The expected number of disablements have been calculated by using the rates of disablement assumed when the Disability Part of the Plan was being considered in 1981. The adoption of this Part of the Plan eliminated service requirements, provided more complete protection and relaxed requirements for qualification.

The actual number of disablements amongst males and females has been less than the number expected in both the 3-year period and 6-year period prior to the valuation date. There was an increase in usage during the most recent 3-year period. The anticipated rates of disablement are based on the actual experience amongst employees in other plans where the Disability Part of the Plan is similar to the Plan. As a result, it was decided to make no changes to the rates of disablement at this time.

The number of employees qualifying for disability pensions is likely to increase in future. The awareness and knowledge of this characteristic of the Plan will likely reach the ultimate level in the next 3 years.

(g) Incidence of Retirement for Reasons other Than Disability

A study has been made of the incidence of retirement prior to age 70 for reasons other than disability.

The results of this study are shown in the following table:

		1980 - 1982		1977 - 1982	
	Age	Actual	Expected	Actual	Expected
Males	<60	9	1	11	2
	60	6	1	8	2
	61 - 64	12	8	22	12
	65	20	32	37	60
	>65	11	-	16	-
		58	42	94	76
Females	<60	-	1	1	1
	60	2	1	3	1
	61 - 64	3	3	3	4
	65	3	3	5	9
	>65	3	-	6	-
		11	8	18	15

The actual number of retirements amongst males was greater than the number expected in both the 3-year period and 6-year period prior to the valuation date. This difference was caused by experience in the 3-year period prior to the valuation date.

Some of these retirements are due to the favourable retirement privilege available under the Plan. Most of these employees were participating in other plans prior to 1977. In the past, the ability of an employee to retire early was affected by the reduction made to the pension and by the much smaller pensions that were available under prior plans. As a result, the retirement of some employees was delayed.

At ages less than age 65, the number of retirements amongst females was equal to the number expected in the 3-year period and close to the number expected in the 6-year period prior to the valuation date.

A number of employees have continued in service after age 65 and retired at a later age. This practice is likely to continue in future due to the elimination of compulsory retirement as an employment practice. This made it desirable to extend the rates of retirement up to age 70. No other changes were made to the rates of retirement.

(h) Rate at which Interest is Expected to be Credited on Required Contributions

A cash settlement can be paid to an employee who terminates service or to the beneficiary of an employee who dies in service. The cash settlement is equal to the employee's required contributions, with interest.

The rate of interest is based on a 5-year moving average of the rates of interest credited to non-chequing savings accounts operated by the major chartered banks in Canada.

A good indication of the rates of interest likely to be credited in the future can be obtained from a study of the rates of interest which have been allowed on these non-chequing savings accounts during the 20-year period ending December 31st, 1982. During this period, the average rate of interest was 6.58% per year.

On the basis of the above considerations, it is reasonable to anticipate that, in future, interest will be credited on required contributions at a rate of 6.50% per year.

(i) Cost of Administering the Plan

In the 1980 Report, we indicated that the present value of the expenses expected to be incurred in administering the Plan in 1980, 1981 and 1982 was equal to $254,500.

This is equivalent to expected expenses of $282,400. Actual expenses for these 3 years was equal to $326,000.

Some of these expenses were due to the establishment of the Plan and the addition of the Disability Part of the Plan. This part of the expenses is non-recurring.

The close relationship between actual and expected expenses during the period under review justifies the continued use of the procedure used in the 1980 Report for determining expected future expenses.

The estimated expenses of administering the Plan during 1983, 1984 and 1985 are based on the expenses incurred in 1982. It is assumed that administrative expenses will increase by 10% per year. This is similar to the rate at which salaries are expected to increase in the future. On this basis, the present value of these expenses is equal to $328,800.

If allowance is made for the increase in expenses likely to occur as a result of pension regulation, an additional $35,000 would be set aside. This allocation would increase to $363,800, the present value of these expenses. This amount is shown in the Valuation Balance Sheet as a provision for future expenses.

5. Summary of Actuarial Assumptions Used in this Report

(a) Annual rate of Return on the Assets of the Fund - 9.00% per year.

(b) Annual Rates of Salary Increase (including an allowance of 7.50% per year for future general increases in salary levels):

Ages	Males	Females
20 - 25	13.5%	11.1%
25 - 30	10.9	10.2
30 - 35	10.2	9.2
35 - 40	9.4	9.0
40 - 45	9.0	8.8
45 - 50	8.8	8.6
50 - 55	8.3	8.1
55 - 60	8.0	8.0
60 - 65	7.9	7.9
65 - 70	7.9	7.9

It has been assumed the Yearly Maximum Pensionable Earnings under the Canada Pension Plan will increase at the rate of 12.50% per year until it catches up to the average earnings of Canadians, after which it will increase by the allowance for general increases in salary - 7.50% per year. The future average earnings of Canadians is determined by increasing the Average Weekly Earnings Industrial Composite (published by Statistics Canada) as at the valuation date by the allowance made for general increases in salary - 7.50% per year.

(c) Annual Rates of Death After Pension Commences (for selected ages):

Attained Age	Non-Disabled		Disabled		Survivors	
	Males	Females	Males	Females	Widowers	Widows
20	N/A	N/A	.0882	.0477	N/A	N/A
30	N/A	N/A	.0851	.0454	.0010	.0005
40	N/A	N/A	.0756	.0403	.0020	.0009
50	N/A	N/A	.0674	.0359	.0066	.0021
60	.0138	.0066	.0713	.0380	.0138	.0066
70	.0351	.0159	.0971	.0518	.0351	.0159
80	.0855	.0530	.1749	.0933	.0855	.0530
90	.2085	.1730	.3473	.1852	.2085	.1730
100	.4634	.4494	1.0000	1.0000	.4634	.4494

(d) Annual Rates of Death Prior to the Date the Pension Commences (for selected ages):

Attained Age	Males	Females
20	.0006	.0003
25	.0007	.0004
30	.0009	.0006
35	.0012	.0008
40	.0018	.0012
45	.0032	.0018
50	.0058	.0027
55	.0093	.0041
60	.0138	.0066
65	.0205	.0108
69	.0312	.0147

(e) Annual Rates of Termination from Service:

(i) leading to a lump-sum payment or a deferred pension (for selected ages):

Attained Age	Males	Females
20	.109	.226
25	.081	.203
30	.057	.143
35	.042	.083
40	.028	.047
45	.020	.036
50	.011	.024
54	.007	.014

(ii) proportion of eligible terminations expected to elect a deferred pension where such a pension may be elected (for selected ages):

Attained Age	Males	Females
20	-	-
25	.103	.080
30	.178	.165
35	.252	.252
40	.329	.338
45	.404	.426
50	.479	.510
54	.541	.576

It is expected that all employees terminating service at ages 45 and older who have completed 10 or more years of service will be credited with a deferred pension.

(f) Annual Rates of Becoming Disabled (for selected ages):

Attained Age	Males	Females
35	.001	.002
40	.002	.003
45	.002	.003
50	.003	.005
55	.007	.011
60	.011	.021
64	.027	.049

(g) Annual Rates of Retirement (for selected ages):

Attained Age	Males	Females
56	.005	.010
58	.008	.017
60	.028	.055
62	.061	.110
64	.115	.152
66	.375	.200
68	.167	.500
70	1.000	1.000

(h) Annual Rate of Interest Expected to be Credited to Required Contributions - 6.50% per year.

(i) Provision for Administrative Expenses during the next 3 years - $363,800.

6. Valuation Results - Present Members of the Plan

The financial position of the Plan is indicated by the relationship between:

(a) the present value of the liabilities which the Plan has in respect of the benefits promised, and

(b) the present value of the funds available to finance these liabilities as they fall due.

The actuarial valuation is the process whereby this relationship is quantified.

(a) The present value of the liabilities of the Plan in respect of employees is determined separately for each benefit the Plan provides.

For each benefit, each employee and each future year of service in the Plan, we determine:

(i) the probability of a benefit becoming payable at each future age based on the actuarial assumptions outlined in the previous section of this Report,

(ii) a discount factor which makes allowance for the portion of the benefit which is expected to be financed by future investment earnings, and

(iii) the amount of the expected benefit. The benefit expected to be paid is based on service completed prior to the valuation date, plus service expected to be completed after the valuation date but prior to the occurrence of the event that is causing the benefit to be paid. The expected benefit is calculated using the salary expected to be received prior to the occurrence of the event.

The present value of the liabilities for each benefit for each employee is the sum of the product of these 3 components over all possible future years of service for that employee. The present value of the Plan's liabilities for each benefit is the sum of the present value obtained for each employee.

The present value of the liabilities of the Plan in respect of pensioners and former employees entitled to a deferred pension is determined by a similar process except the amount of the benefit is based on the amount of pension being paid at the valuation date or the amount of pension which will become payable in the future.

(b) The principal sources of funds available to finance the liabilities of the Plan are:

(i) the present assets of the Pension Fund, and

(ii) the contributions expected to be made to the Plan by the employees and the Participating Municipalities.

The present value of contributions expected to be received in the future in respect of employees is determined by a procedure similar to that used in the calculation of liabilities.

Each Municipality is required to make contributions for the benefits provided under the Pension Part of the Plan. These contributions must be at least equal to the contributions required to be made by those of its employees who are participating in this part of the Plan. Employees who are members of the Plan contribute at one of 2 sets of rates for benefits provided under the Pension Part of the Plan. Employees who contribute at the lower rates receive a pension equal to two-thirds of the pension received by employees who contribute at the higher rates. At the valuation date 1,668 employees were contributing at the higher rates and 17 employees were contributing at the lower rates.

Additional contributions are required to be made by or in respect of employees participating in the Disability Part of the Plan. The Municipality, the employees or both may contribute under this Part of the Plan. The total contribution rate required under this Part of the Plan is equal to 1.00% of earnings.

The required contribution rates are as follows:

Pension Part of Plan	Percentage of Earnings		
	Employees	Municipality	Total
≤ Y.M.P.E.	4.40%	4.40%	8.80%
> Y.M.P.E.	6.00	6.00	12.00
or			
≤ Y.M.P.E.	3.00%	3.00%	6.00%
> Y.M.P.E.	4.00	4.00	8.00
Disability Part of Plan			
Municipality and employee both contribute	.50%	.50%	1.00%
Municipality only contributes	-	1.00	1.00
Employee only contributes	1.00	-	1.00

The Y.M.P.E. is the yearly Maximum Pensionable Earnings under the Canada Pension Plan. There are 2 Municipalities which share in the cost of the disability benefits but pay less than 50% of the cost of the disability benefits.

The Valuation Balance Sheet reflects the financial position of the Plan with respect to the present members. While new entrants to the Plan in future years will affect the financial position, the number of these and their distribution by age, sex and salary is much less easy to predict than the other factors taken into account in the valuation. Consequently, the effect which new entrants to the Plan in future years will have on the financial position of the Plan has been considered separately and is discussed in a subsequent section of this Report.

The financial position of the Plan with respect to the present members is shown in the following Valuation Balance Sheet.

Pension Plan for Employees of
Participating Municipalities in Manitoba
Valuation Balance Sheet
as at January 1st, 1983

ASSETS

Invested Assets:		
Fixed Income (amortized cost)	$18,062,293	
Common Stock (cost)	100,000	
Real Estate Equity Units (adjusted cost Note 1)	682,144	
Less: Investment reserve	142,168	$18,702,269
Cash in bank	$ 121,401	
Accrued interest on investments	163,331	
Contributions receivable	329,153	613,885
Value of future payments by employees purchasing credit for prior service		77,300
Value of future contributions expected to be received		
- present employees	$24,197,000	
- Participating Municipalities	24,067,800	48,264,800
TOTAL ASSETS		$67,658,254

LIABILITIES

Value of liabilities in respect of current benefits		
- retirement pensions	$ 2,065,300	
- disability pensions	59,800	
- survivors' pensions	103,700	$ 2,228,800
Value of liabilities in respect of future benefits earned for service to December 31st, 1982		
(a) present employees		
- retirement pensions	$ 9,662,500	
- disability pensions	1,234,700	
- survivors' pensions	777,900	
- deferred pensions	808,000	
- lump-sum payments on death	911,500	
- lump-sum payments on termination	791,400	
(b) former employees		
- deferred pensions	134,700	14,320,700
Value of liabilities in respect of future benefits expected to be earned by present employees for service on and after January 1st, 1983		
- retirement pensions	$28,392,300	
- disability pensions	5,707,100	
- survivors' pensions	2,694,600	
- deferred pensions	2,134,600	
- lump-sum payments on death	1,721,700	
- lump-sum payments on termination	1,338,800	41,989,100
Value of funds to be transferred under reciprocal agreements		30,800
Value of paid-up pensions to be paid under reciprocal agreements		128,100
Value of future payments under reciprocal agreements		213,000
Provision for increases in pensions in 1983 (Note 2)		105,000
Accounts payable (Note 3)		46,714
Provision for future expenses		363,800
TOTAL LIABILITIES		$59,426,014
SURPLUS		$ 8,232,240

Notes

1. Real estate investments are reported at cost plus the proportionate share of earnings reported by the property manager.

2. The amount shown as the provision for increases in pensions in 1983 is equal to the increase in liabilities caused by the increases in current pension effective July 1st, 1983.

3. Accounts payable consist of:

- Cheques outstanding	$31,610
- Accounts payable and accrued liabilities	15,104
	$46,714

7. Analysis of Valuation Results

The Valuation Balance Sheet discloses a surplus of $8,232,240 as at January 1st, 1983. In our 1980 Report, a surplus of $1,216,061 was disclosed.

The financial position of the Plan as at January 1st, 1983 can be reproduced if the surplus as at January 1st, 1980 is adjusted to recognize the various changes in the financial position which occurred during the valuation period. This procedure is demonstrated in the following schedule:

Surplus as at January 1st, 1980	$1,216,061
Cost of increases in pension in 1981, 1982, and 1983	(263,300)
Interest earned on surplus remaining, at the rate assumed in the 1980 Report	239,100
Expected surplus as at January 1st, 1983 before allowance is made for actual experience during the period under review	$1,191,861
Effect of actual experience during period under review	1,905,879
Surplus as at January 1st, 1983 before allowance is made for changes in expected future experience	$3,097,740
Net improvement in financial position due to changes in expected future experience	5,134,500
Surplus as at January 1st, 1983	$8,232,240

The following factors influenced the actual experience during the period under review and improved the financial results:

(a) The greater than assumed rate of return on investments made for the Plan. The improvement in financial position due to this source is equal to $1,262,500.

(b) The contribution rate for new members was higher than the rate required in order to finance the benefits promised under the Plan. The margin in the contribution rate is equal to .30% of the portion of salary up to the Canada Pension Plan earnings maximum and .40% of the portion of any salary in excess of this amount. The expected excess of future contributions over future benefits is equal to $442,300.

(c) The larger than expected number of deaths amongst pensioners.

(d) The larger than expected number of terminations from service.

(e) The larger than expected number of retirements after age 65.

(f) The smaller than expected number of employees becoming disabled.

The following factors influenced the actual experience during the period under review and had an adverse effect on the financial results:

(a) The greater than expected increases in salaries amongst employees. The adverse affect of greater than expected increases in salaries is equal to $905,600.

(b) The larger than expected number of former employees who elected a deferred pension on termination of service.

(c) The larger than expected number of retirements prior to age 65.

The following changes made to the actuarial assumptions improved the financial results:

(a) An increase in the assumed rate of return on the Pension Fund.

(b) A decrease in the allowance made for increases in salary due to increases in productivity in the future.

(c) An increase in the rates of termination from service.

(d) The extension of the rates of retirement to ages beyond age 65.

The following changes made to the actuarial assumptions had an adverse effect on the financial results:

(a) An increase in the rate at which general increases in salary are expected to occur in future years as a result of inflation.

(b) An increase in the proportion of terminating employees who are expected to elect a deferred pension.

These changes in the actuarial assumptions caused the surplus to increase by $5,134,500.

8. Valuation Results - Future New Contributors

The method used to determine the expected cost of benefits provided by the Plan is known as the entry age normal cost method. Under this method the expected annual cost is determined as the level percentage of salary required each year to finance each projected benefit between the date of entry into the Plan and the commencement of that benefit. The expected annual cost is commonly called the theoretical contribution rates.

Future new contributors may have a significant effect on the Plan. This financial effect is determined by comparing:

(a) the theoretical contribution rates, and

(b) the required contribution rates under the Plan.

The theoretical contribution rates are dependent on the distribution of the new contributors by age, sex and salary. For this purpose, it has been assumed that the distribution will be the same as it was for present contributors to the plan at their date of entry into the Plan.

If the assumptions on which this Report is based are realized during the period that future new contributors are members of the Plan, the cost of providing them with the benefits promised under the Plan is as shown in the following table. Allowance has been made for the total benefits promised under both the Pension Part and Disability Part of the Plan.

The rates of contribution required to be made by the employees and by the Municipalities on their behalf are also shown:

Total Benefits	Theoretical Contribution Rates	Required Contribution Rates	Margin
$\leq$ Y.M.P.E.	9.50%	9.80%	.30%
>Y.M.P.E.	12.60	13.00	.40
or			
$\leq$ Y.M.P.E.	6.80%	7.00%	.20%
> Y.M.P.E.	8.70	9.00	.30

The existence of a margin in the contribution rates ensures that the financial position of the Plan will not be adversely affected when new employees begin to contribute to the Plan.

9. Comments and Recommendations

During the last 3 years, the financial position of the Plan has been affected by changes in actual and expected experience. These changes are automatically reflected in the financial results obtained.

The results obtained indicate that there has been a significant improvement in the financial position of the Plan during the period under review.

The assets of the Plan, together with the contributions expected to be made in future by and on behalf of present employees, are sufficient to pay the benefits promised under the Plan, as these benefits become due.

No allowance has been made for future increases in pension due to increases in the cost of living. If it is desired to make allowance for the increases in pension which are expected to occur in 1984, 1985, and 1986, then $500,000 of the surplus should be set aside for that purpose.

In considering the use to be made of the surplus you will want to make allowance for the adverse financial effect of changes in legislation affecting pension plans in Manitoba.

After this allowance is made, all or a portion of the surplus then remaining can be used in any way considered to be desirable.

10. Certification

We hereby certify that, in our opinion, the assets of the Plan, together with the contributions expected to be received from, and on behalf of the members of the Plan are sufficient to provide the benefits promised by the Plan as these fall due.

We will be pleased to discuss this Report with you at your convenience.

DATED at Winnipeg, this 30th day of January, 1984.

Respectfully submitted,

Louis E Clement

Actuary

John A. Turnbull

Actuary

January 30th, 1984

COST CERTIFICATE
FOR THE
PENSION PLAN FOR EMPLOYEES OF PARTICIPATING MUNICIPALITIES IN MANITOBA
AS AT JANUARY 1st, 1983

The undersigned hereby certifies that:

1. The fiscal year of the Pension Plan for Employees of Participating Municipalities in Manitoba (Plan) is from January 1st to December 31st.

2. The actuarial cost method used to determine the cost of benefits in the year 1983 is known as the entry age normal cost method.

   On the basis of the membership of the Plan as at December 31st, 1982, the estimated cost of benefits for service during 1983 is less than the amounts required to be contributed to the Plan as a result of such service.

   Each Municipality is required to make contributions for the benefits provided under the Pension Part of the Plan. These contributions must be at least equal to the contributions required to be made by those of its employees who are participating in this Part of the Plan. Employees who are members of the Plan contribute at one of 2 sets of rates for basic benefits. Employees who contribute at the lower rates receive a pension equal to two-thirds of the pension received by employees who contribute at the higher rates. At the valuation date 1,668 employees were contributing at the higher rates and 17 employees were contributing at the lower rates.

   Additional contributions are required to be made by or in respect of employees participating in the Disability Part of the Plan. The Municipality, the employees or both may contribute under this Part of the Plan. The total contribution rate required under this Part of the Plan is equal to 1.00% of earnings.

The required contribution rates are as follows:

Pension Part of Plan	Employees	Municipality	Total
≤ Y.M.P.E.	4.40%	4.40%	8.80%
> Y.M.P.E.	6.00	6.00	12.00
or			
≤ Y.M.P.E.	3.00%	3.00%	6.00%
> Y.M.P.E.	4.00	4.00	8.00
Disability Part of Plan			
Municipality and employee both contribute	.50%	.50%	1.00%
Municipality only contributes	-	1.00	1.00
Employee only contributes	1.00	-	1.00

The Y.M.P.E. is the Yearly Maximum Pensionable Earnings under the Canada Pension Plan. Two of the Municipalities share in the cost of the disability benefits but pay less than 50% of the total rate of contribution.

It is expected the contributions required to be made by the employees will be equal to $1,678,500 in 1983. The Participating Municipalities will contribute an equal amount.

3. The rule for computing the expected cost of benefits for service in subsequent years up to the date of the next cost certificate is the same as in 2 above.

4. There are no initial unfunded liabilities under the Plan as at January 1st, 1983.

5. The Plan had a surplus of $8,232,240 as at Janaury 1st, 1983.

SIGNED at Winnipeg, this thirtieth day of January, 1984.

Louis E. Clement

Fellow of the Canadian Institute of Actuaries

BASIS

See Report